

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-\_\_\_\_  
FOR  
WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.  
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY  
CLASS II AND CLASS III MUNICIPAL SOLID WASTE LANDFILLS AND  
CLASS II SURFACE IMPOUNDMENTS  
CONSTRUCTION, OPERATION, AND CORRECTIVE ACTION  
ALAMEDA COUNTY

The Discharger shall comply with this Monitoring and Reporting Program, with California Code of Regulations, title 27, section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (Title 27, §20005 et seq. and 40 CFR 258)*, dated April 2000, as ordered by Waste Discharge Requirements Order No. R5-2009-\_\_\_\_\_.

**A. REQUIRED MONITORING REPORTS**

<u>Report</u>	<u>Due</u>
1. Groundwater Monitoring (Section D.1)	<b>See Table I</b>
2. Annual Monitoring Summary Report (Section E.5.)	<b>Annually</b>
3. Unsaturated Zone Monitoring (Section D.2)	<b>See Table II</b>
4. Leachate Monitoring (Section D.3)	<b>See Table III</b>
5. Leachate Treatment Plant (Section D.4)	<b>See Table III</b>
6. Surface Water Monitoring (Section D.5)	<b>See Table IV</b>
7. Facility Monitoring (Section D.6)	<b>As necessary</b>
8. Response to a Release (Standard Provisions and Reporting Requirements)	<b>As necessary</b>

**B. REPORTING**

The Discharger shall submit semiannual monitoring reports with the data and information required in this Monitoring and Reporting Program and as required in Order No. R5-2009-\_\_\_\_\_ and the Standard Provisions and Reporting Requirements.

Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format (.xls) acceptable to the Executive Officer.

Each monitoring report shall include a compliance evaluation summary as specified in E. Reporting Requirements, below.

Field and laboratory tests shall be reported in each monitoring report. Monthly, quarterly, semiannual, and annual monitoring reports shall be submitted to the Regional Water Board in accordance with the following schedule for the calendar period in which samples were taken or observations made.

<u>Sampling Frequency</u>	<u>Reporting Frequency</u>	<u>Reporting Periods End</u>	<u>Report Date Due</u>
Monthly	Semiannually	Last Day of Month	<b>by Semiannual Schedule</b>
Quarterly	Semiannually	31 March	<b>by Semiannual Schedule</b>
		30 June	<b>by Semiannual Schedule</b>
		30 September	<b>by Semiannual Schedule</b>
		31 December	<b>by Semiannual Schedule</b>
Semiannually	Semiannually	30 June	<b>31 July</b>
		31 December	<b>31 January</b>
Annually	Annually	31 December	<b>31 January</b>
5-Year	Every 5 years	31 December	<b>31 January</b>

The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Water Board covering the previous monitoring year. The annual report shall contain the information specified in E. Reporting Requirements, below, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard. The Annual Monitoring Report can be combined with the year-end Semiannual Report such that two summary reports are not required by the January 31 due date. The last 5-year Constituent-of-Concern (COC) groundwater monitoring event was conducted during 2005; therefore, the next COC event is scheduled to take place in **2010**.

The results of **all monitoring** conducted at the site shall be reported to the Regional Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

## **C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD**

### **1. Water Quality Protection Standard Report**

For each waste management unit (Unit) {Fill Area I, Fill Area II and the Class II Surface Impoundments}, the Water Quality Protection Standard shall consist of all COCs, the concentration limit for each COC, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. The Water Quality Protection Standard, or any modification thereto, shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, §20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

### **2. Constituents of Concern (COCs)**

The COCs include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The COCs for all Units at the facility are those listed in Tables I through IV

for the specified monitored medium. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program.

The Discharger shall add the following COCs to the COC list:

(1) tetrahydrofuran (THF), (2) diethyl ether, (3) dichlorofluoromethane, (4) dichlorodifluoromethane, and (5) trichlorofluoromethane. The Discharger shall monitor all COCs every five years.

For non-anthropogenic monitoring parameters (e.g., trace metals), the Discharger is responsible for collecting sufficient intra-well background data such that statistical analysis of non-anthropogenic COCs can be performed.

The last 5-year COC monitoring event was conducted during 2005; therefore, the next COC event is scheduled to take place in **2010**. The Discharger shall monitor all constituents of concern every five years, or more frequently as required in accordance with a Corrective Action Program. The Discharger shall monitor all COCs as specified in Table VI.

### **3. Monitoring Parameters**

Monitoring parameters are COCs that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables I through V for the specified monitored medium.

### **4. Concentration Limits**

For a naturally occurring COC, the concentration limit for each COC shall be determined by an alternate statistical method meeting the requirements of Title 27, §20415(e)(8)(E). Concentration limits shall be updated by the Discharger every two years and reported in the Annual Monitoring Summary Report for the respective reporting period. Calculation of the limits will follow ASTM Standard D 6312 – 98 “Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs” and the most recently approved Detection Monitoring Plan for the facility.

### **5. Point of Compliance**

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

## **6. Compliance Period**

The compliance period for each Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program.

## **D. MONITORING**

The Discharger shall comply with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone. Detection monitoring for Fill Area II shall be installed, operational, and one year of monitoring data collected **prior to** the discharge of wastes. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that shall be submitted for review and approval.

All point of compliance monitoring wells established for the detection and corrective action monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and COCs as indicated and listed in Tables I through IV.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table VI.

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

### **1. Groundwater**

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27 in accordance with approved Detection and Corrective Action Monitoring Programs, where appropriate. The monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The Discharger shall assess the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation

monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually, including the times of expected highest and lowest elevations of the water levels in the wells.

Groundwater samples shall be collected from the following monitoring wells. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table I.

### Landfill Groundwater Monitoring Wells

Monitoring Program	Fill Area	Well No.
Detection Monitoring	1	MW-2A, MW-5A, MW-6, MW-7, E-05, E-07, E-23
Detection Monitoring	2	MW-4A, MW-8A, MW-8B, MW-9, MW-10
Corrective Action (VOCs)	1	E-03A, E-05, E-07, E-17, E-20B, E-23

### Landfill Groundwater Piezometers

Fill Area	Well No.
1	B-8, E-18, E-21, E-22, MW-1A, MW-1B, MW-2B, MW-2C, MW-3B, MW-3C, MW-4B, MW-5B, WM-1, P-5G
2	B-8, MW-3B, MW-3C, MW-4B, WM-1, WM-2, ARC-2, HSA-6, P-1, P-2, PC-1A, PC-1B, PC-1C, PC-2A, PC-2C, PC-6A, PC-6B

Samples for the COCs specified in Table I shall be collected and analyzed in accordance with the methods listed in Table VI every five years. The last 5-year COC groundwater monitoring event was conducted during 2005; therefore, the next COC event is scheduled to take place in 2010.

## 2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27, §20415 and §20420, in accordance with an approved Detection Monitoring Program. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

Unsaturated zone samples shall be collected from the monitoring devices of the approved unsaturated zone monitoring system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in Table II. Samples for the COCs specified in Table II shall be collected and analyzed in accordance with the methods listed in Table VI every five years.

Sumps for subdrains under Fill Area I, Unit 1 and Unit 2 shall be inspected weekly for water. For Fill Area 1, Unit 1, valley subdrain data may be combined with leachate sump data if both sources share a common sump. The locations to be sampled are identified as VZM-A and VD. For Fill Area 1, Unit 2, the location to be samples is identified as VD2. Field samples from these locations shall be sampled on a quarterly basis, while samples needed for chemical analysis shall be collected on an annual basis. Table II presents the list of analytes and mediums to be sampled (liquid and soil-pore gas). The quantity of water pumped from each sump shall be measured continuously and reported as subdrain flow (total gallons/month).

For Fill Area II, the pan lysimeters and groundwater subdrains shall be checked monthly for liquid and monitoring shall also include the total volume of liquid removed from the system. Upon detection of water in a previously dry lysimeter or subdrain, the Discharger shall immediately sample the water and soil-pore gas and shall continue to sample the lysimeter as described in Table II. Unsaturated zone monitoring reports shall be included with the corresponding semiannual groundwater monitoring and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard. The quantity of water pumped from each sump shall be measured continuously and reported as subdrain flow (total gallons/month).

## 3. Leachate/Seep Monitoring

All Unit leachate collection and removal system sumps shall be inspected weekly for leachate generation. Upon detection of leachate in a previously dry leachate collection and removal system, leachate shall be sampled **immediately** and analyzed for the constituents listed in Table III. Leachate shall then be sampled and analyzed for monitoring parameters annually during the fourth quarter in accordance with Table III thereafter, with a retest during the following second quarter if constituents are detected that have not been previously detected. Leachate field parameters shall be sampled

and analyzed in accordance with Table III. The COCs list shall include all constituents listed in Table VI. The quantity of leachate pumped from each sump shall be measured and reported monthly as Leachate Flow Rate (in gallons/month). Leachate monitoring locations for Fill Area 1 are designated as LS, LS2, and the wastewater treatment plant effluent.

All leachate collection and removal system sumps shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Regional Water Board and shall include comparison with earlier tests made under comparable conditions.

Leachate which seeps to the surface from any Unit shall be sampled and analyzed for the Monitoring Parameters and COCs listed in Table III upon detection. The quantity of leachate shall be *estimated* and reported as Leachate Flow Rate (in gallons/day).

#### **4. Leachate Treatment Plant Monitoring**

Effluent from the leachate treatment plant shall be measured continuously and reported as Leachate Treatment Plant Effluent Volume (gallons/month). Any spills associated with the leachate shall be immediately sampled for the parameters listed in Table III. The Regional Water Board shall be notified **immediately** by phone about the event and how it was remedied. A written report shall also be filed with the Regional Water Board **within seven days**, containing at least the following information:

- a) An estimate of the spill volume;
- b) A description of the nature of the discharge (e.g., all pertinent observations and analyses);
- c) Verification that samples have been submitted for analyses of the Monitoring Parameters and COCs listed in Table III of this MRP, and an estimated date that the results will be submitted to the Regional Water Board; and
- d) Corrective measures underway or proposed, and corresponding time schedule.

#### **5. Surface Water Monitoring**

The Discharger shall install and operate a surface water detection monitoring system, where appropriate, that complies with the applicable provisions of Title 27, §20415 and §20420 in accordance with an approved Detection Monitoring Program.

For all monitoring points and background monitoring points assigned to surface water detection monitoring, samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table IV. All surface water monitoring samples shall be collected and analyzed for the COCs specified in Table IV every five years.



The Discharger shall comply with the requirements of the Industrial Activities Stormwater General Permit. Surface water flows from on and around the landfill shall be sampled at the point(s) where they leave the facility boundary. Samples shall be taken twice during the wet season (October 1 to May 30) starting with the first storm of the rainy season which produces significant flows and analyzed for parameters listed in Table IV. Samples shall also be collected from each stormwater retention basin annually and shall be analyzed for the parameters listed in Table IV.

## **6. Facility Monitoring**

### **a. Facility Inspection**

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in Section E.3.f. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and repairs.

### **b. Storm Events**

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and repairs.

## 7. Incoming Waste Monitoring Program

### a. Petroleum Contaminated Soils Monitoring

Monitoring requirements for soils accepted for direct disposal in any landfill unit are as follows:

<b><u>Report in Parameter/Constituent</u></b>	<b><u>Units of</u></b>	<b><u>Sampling Frequency</u></b>
Amount of soil	Cubic Yards	Every Lot*
Before acceptance:		
<b>for Gasoline:</b>	mg/kg	Every Lot <sup>1</sup>
EPA 5030/8015 Modified		
EPA 5030/8020		
TTLC Pb <sup>**</sup> (1)		
<b>for Diesel &amp; Virgin Oil:</b>	mg/kg	Every Lot
EPA 3550/8015 Modified		
<b>for Waste Oil</b>	mg/kg	Every Lot
EPA 3550/8015 Modified		
EPA 5030/8015 Modified		
EPA 8260 (or 8010 & 8020)		
EPA 8270		
5520 E&F (total oil & grease)		
TTLC Metals <sup>**</sup> : Cd, Cr, Pb, Ni, Zn		
<b>Aquatic 96-Hour Static Bioassay required if:</b>		Every Lot
Gasoline is greater than 5,900 ppm; or		
Diesel is greater than 20,000 ppm; or		
Motor or waste oil is greater than 10,000 ppm.		
<b>After Treatment or Discharge:</b>		
Final disposition of soil		Every Lot*

\* The total amount of contaminated soil accepted from a site (gas station, pipeline spill, etc.) shall be defined as a lot. For every lot of soil, representative testing shall be conducted before the soil is accepted at Altamont.

\*\* The WET method shall be run if any total metal concentration exceeds 10 times the STLC or the Designated Level if waste is discharged to the Class III landfill.

<sup>1</sup> The TTLC requirement for Pb applies to when the generator determines that leaded gasoline was or may have been present. In situations where there is proof that a generator's tank never contained leaded gasoline, the TTLC requirement for Pb can be omitted.

b. Designated and Non-Hazardous Solid Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class III and Class II landfill units on a monthly basis and report to the Regional Water Board as follows:

<b><u>Report in Parameter</u></b>	<b><u>Units of</u></b>	<b><u>Frequency of Reporting</u></b>
Quantity Discharged:		
Non-hazardous Solid Waste	Cubic Yards & Tons	Yearly
Designated Waste	Cubic Yards & Tons	Yearly
Petroleum Contaminated Soil	Cubic Yards & Tons	
Asbestos	Cubic Yards & Tons	Yearly
Sewage and Wastewater	Cubic Yards or Tons	Yearly
Treatment Sludges		
Average % Solids	%	Yearly
Location of Discharge	- -	Yearly
Minimum Elevation(s) of Discharge during Quarter	Feet & Tenths, Mean Sea Level	Yearly
Capacity of Landfill Units Remaining	Percent	Yearly

When it is necessary to determine if a solid waste, including contaminated soil, is a 'designated waste', a Waste Extraction Test (WET) shall be run. The waste may be disposed of in a Class III landfill unit at this site only under the following conditions:

- i. If the concentrations of extractable constituents (expressed in mg/l of extract), as determined by the standard WET (CCR, Title 22, Division 4.5, Chapter 11), do not exceed the Maximum Concentrations specified in the following table, the waste may be co-disposed with 'non-hazardous solid waste'.
- ii. If the concentrations of extractable constituents (expressed in mg/l of extract), as determined by the WET run with deionized water in place of the standard citrate buffer, do not exceed the Maximum Concentrations specified in the following table, the waste may be disposed of in an area where the waste will not contact degradable wastes or wastes capable of generating acidic leachate or landfill leachate, or be overlain by wastes capable of generating acidic leachate.

<u>Designated Level Parameter</u>	<u>Maximum Concentration in mg/l of WET Extract</u>
Cadmium	0.05
Chromium (VI)	0.5*
Copper	20
Lead	1.5
Mercury	0.02
Nickel	1.0
Zinc	200

\* At the Discharger's discretion, may be met based on Total Chromium analyses, provided that the Total Chromium analyses is below 0.5 mg/l.

The designated levels for petroleum-contaminated soils are 100 mg/kg TPH Diesel by Modified EPA 8015 or equivalent method and nondetectable TPH Gasoline or BTXE by EPA Methods 8015 and 8020. Soils containing greater than 100 mg/kg TPH Diesel or detectable TPH Gasoline or BTXE shall be discharged only to a Class II landfill unit.

#### c. Shredder Waste Monitoring

Monitoring requirements for shredder waste accepted at Altamont are as follows:

<u>Parameter/Constituent</u>	<u>Report in Units of</u>	<u>Sampling Frequency</u>
PCBs	mg/kg	Every 1,000 tons*
Location of shredder waste disposal	--	Yearly
Amount of shredder waste accepted	tons	Yearly
BTX&E	mg/l or µg/l	Every 1,000 tons**
Total Petroleum Hydrocarbons (TPH)	mg/kg	Every 1,000 tons**
Designated Level Parameters	mg/l	Every 1,000 tons**

\* Or more frequently as required by the Department of Toxic Substances Control.

\*\* Only required for shredder waste discharged to Class III unit.

Testing for PCBs shall be conducted using composite samples collected at the shredder facility. The samples shall be analyzed for PCBs using EPA Method 8080.

## **E. REPORTING REQUIREMENTS**

1. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the postclosure period.

Such legible records shall show the following for each sample:

- a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
  - b) Date, time, and manner of sampling;
  - c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
  - d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
  - e) Calculation of results; and
  - f) Results of analyses, and the MDL and PQL for each analysis.
2. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.
  3. Each monitoring report shall contain at least the following:
    - a) For each monitoring point and background monitoring point addressed by the report, a description of:
      - 1) The time of water level measurement;
      - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

- 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
  - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
  - 5) A statement that the sampling procedure was conducted in accordance with the approved Sampling and Analysis Plan.
- b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
  - c) For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.
  - d) Laboratory statements of results of all analyses evaluating compliance with requirements.
  - e) An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
  - f) A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit, and for the receiving waters. Standard observations for ACTIVE landfill units shall be conducted **weekly** during the wet season (1 October to 30 April) and **monthly** during the dry season (1 May to 30 September). Standard observations for INACTIVE or CLOSED landfill units shall be conducted **monthly** during the wet season (1 October to 30 April) and **quarterly** during the dry season (1 May to 30 September). The Standard Observations shall include:
    - 1) For the Unit:
      - a) Evidence of ponded water at any point on the facility (show affected area on map);
      - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
      - c) Evidence of erosion and/or of day-lighted refuse.
    - 2) Along the perimeter of the Unit:

- a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);
  - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
  - c) Evidence of erosion and/or of day-lighted refuse.
- 3) For receiving waters:
- a) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area;
  - b) Discoloration and turbidity - description of color, source, and size of affected area;
  - c) Evidence of odors - presence or absence, characterization, source, and distance of travel from source;
  - d) Evidence of water uses - presence of water-associated wildlife;
  - e) Flow rate; and
  - f) Weather conditions - wind direction and estimated velocity, total precipitation on the day of observation.
  - g) The quantity and types of wastes discharged and the locations in the Unit where waste has been placed since submittal of the last such report.
4. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Water Board **within seven days**, containing at least the following information:
- a) A map showing the location(s) of seepage;
  - b) An estimate of the flow rate;
  - c) A description of the nature of the discharge (e.g., all pertinent observations and analyses);
  - d) Verification that samples have been submitted for analyses of the Monitoring Parameters and COCs listed in Table III of this MRP, and an estimated date that the results will be submitted to the Regional Water Board; and
  - e) Corrective measures underway or proposed, and corresponding time schedule.

5. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Water Board covering the reporting period of the previous monitoring year. This report shall contain:
- a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. If a 5-year COC event was performed, then these parameters shall also be graphically presented. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
  - b) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake.
  - c) An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schueller plot.
  - d) All historical monitoring data collected during the previous 5-years, and for which there are detectable results, including data for the previous year, shall be submitted in tabular form and in a digital file format. The Regional Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], that facilitates periodic review by the Regional Water Board.
  - e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
  - f) A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours.
  - g) A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.
  - h) An evaluation of the effectiveness of the leachate monitoring/control facilities including the results of the annual testing of leachate collection and removal systems required under VIII.P of the Standard Provisions and Reporting Requirements.



The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
(Date)

HFH/WLB

**TABLE I**  
**GROUNDWATER DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters<sup>1</sup></b>		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
<b>Monitoring Parameters<sup>2</sup></b>		
Chemical Oxygen Demand	mg/L	Semiannual
Total Kjeldahl Nitrogen	mg/L	Semiannual
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260, see Table V)	µg/L	Semiannual
<b>Supplemental Parameters<sup>3</sup></b>		
Carbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Calcium (dissolved)	mg/L	Semiannual
Magnesium (dissolved)	mg/L	Semiannual
Potassium (dissolved)	mg/L	Semiannual
Sodium (dissolved)	mg/L	Semiannual
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

- 1 Field parameters are collected for informational purposes to document groundwater conditions at the time of sampling, and are not included in statistical analysis.
- 2 Discharger shall apply the statistical analyses described in Section C.4.1 of this MRP to the inorganic monitoring parameters included on this list.
- 3 Supplemental parameters provide important information regarding groundwater geochemistry, but these parameters are not included in routine statistical analysis.

**TABLE II**

**UNSATURATED ZONE DETECTION MONITORING PROGRAM**

**SOIL-PORE GAS**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Monitoring Parameters</b>		
Volatile Organic Compounds (USEPA Method TO-14)	µg/cm <sup>3</sup>	Semiannual
Methane	%	Semiannual

**PAN LYSIMETERS (or other unsaturated zone monitoring device)**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual

**Monitoring Parameters**

Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Semiannual

**Constituents of Concern (see Table VI)**

Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

**TABLE III**  
**LEACHATE DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Total Flow	Gallons	Quarterly
Flow Rate	Gallons/Month	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Annually
Chloride	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Nitrate - Nitrogen	mg/L	Annually
Sulfate	mg/L	Annually
Calcium	mg/L	Annually
Magnesium	mg/L	Annually
Potassium	mg/L	Annually
Sodium	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Annually
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

**TABLE IV**  
**SURFACE WATER DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Temperature	°C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Chloride	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Semiannual
<b>Constituents of Concern (see Table VI)</b>		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

**TABLE V**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Surrogates for Metallic Constituents:**

pH  
Total Dissolved Solids  
Electrical Conductivity  
Chloride  
Sulfate

**Constituents included in VOC:**

**USEPA Method 8260B**

Acetone  
Acrylonitrile  
Benzene  
Bromochloromethane  
Bromodichloromethane  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Dibromochloromethane (Chlorodibromomethane)  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans-1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC-12)  
Dichlorofluoromethane  
1,1-Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Diethyl ether  
Di-isopropylether (DIPE)  
Ethanol  
Ethyltertiary butyl ether  
Ethylbenzene  
2-Hexanone (Methyl butyl ketone)

**TABLE V (Continued)**

**MONITORING PARAMETERS FOR DETECTION MONITORING**

Hexachlorobutadiene  
Hexachloroethane  
Methyl bromide (Bromomethene)  
Methyl chloride (Chloromethane)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Methyl ethyl ketone (MEK: 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl t-butyl ether  
4-Methyl-2-pentanone (Methyl isobutylketone)  
Naphthalene  
Styrene  
Tertiary amyl methyl ether  
Tertiary butyl alcohol  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)  
Tetrahydrofuran  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1-Trichloroethane (Methylchloroform)  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene)  
Trichlorofluoromethane (CFC- 11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride  
Xylenes

**TABLE VI**  
**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

<b><u>Inorganics (dissolved):</u></b>	<b><u>USEPA Method<sup>1</sup></u></b>
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010B
Sulfide	9030B

1 The Discharger may use alternative methods, including new USEPA-approved methods, provided they have the methods detection limits equal or lower than the analytical methods specified.

**Volatile Organic Compounds:**

**USEPA Method 8260**

Acetone  
 Acetonitrile (Methyl cyanide)  
 Acrolein  
 Acrylonitrile  
 Allyl chloride (3-Chloropropene)  
 Benzene  
 Bromochloromethane (Chlorobromomethane)  
 Bromodichloromethane (Dibromochloromethane)  
 Bromoform (Tribromomethane)  
 Carbon disulfide  
 Carbon tetrachloride  
 Chlorobenzene  
 Chloroethane (Ethyl chloride)  
 Chloroform (Trichloromethane)  
 Chloroprene  
 Dibromochloromethane (Chlorodibromomethane)



**TABLE VI (Continued)**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans- 1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC 12)  
1,1 -Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
1,3-Dichloropropane (Trimethylene dichloride)  
2,2-Dichloropropane (Isopropylidene chloride)  
1,1 -Dichloropropene  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Di-isopropylether (DIPE)  
Ethanol  
Ethyltertiary butyl ether  
Ethylbenzene  
Ethyl methacrylate  
Hexachlorobutadiene  
Hexachloroethane  
2-Hexanone (Methyl butyl ketone)  
Isobutyl alcohol  
Methacrylonitrile  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl t-butyl ether  
Methyl methacrylate  
4-Methyl-2-pentanone (Methyl isobutyl ketone)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Naphthalene  
Propionitrile (Ethyl cyanide)  
Styrene  
Tertiary amyl methyl ether  
Tertiary butyl alcohol  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane

**TABLE VI (Continued)**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1 -Trichloroethane, Methylchloroform  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene; TCE)  
Trichlorofluoromethane (CFC- 11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride (Chloroethene)  
Xylene (total)

**Semi-Volatile Organic Compounds:**

**USEPA Method 8270 - base, neutral, & acid extractables**

Acenaphthene  
Acenaphthylene  
Acetophenone  
2-Acetylaminofluorene (2-AAF)  
Aldrin  
4-Aminobiphenyl  
Anthracene  
Benzo[a]anthracene (Benzanthracene)  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[g,h,i]perylene  
Benzo[a]pyrene  
Benzyl alcohol  
Bis(2-ethylhexyl) phthalate  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl) ether (Dichloroethyl ether)  
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate (Benzyl butyl phthalate)  
Chlordane  
p-Chloroaniline  
Chlorobenzilate  
p-Chloro-m-cresol (4-Chloro-3-methylphenol)  
2-Chloronaphthalene  
2-Chlorophenol  
4-Chlorophenyl phenyl ether

**TABLE VI (Continued)**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

Chrysene  
o-Cresol (2-methylphenol)  
m-Cresol (3-methylphenol)  
p-Cresol (4-methylphenol)  
4,4'-DDD  
4,4'-DDE  
4,4'-DDT  
Diallate  
Dibenz[a,h]anthracene  
Dibenzofuran  
Di-n-butyl phthalate  
3,3'-Dichlorobenzidine  
2,4-Dichlorophenol  
2,6-Dichlorophenol  
Dieldrin  
Diethyl phthalate  
p-(Dimethylamino)azobenzene  
7,12-Dimethylbenz[a]anthracene  
3,3'-Dimethylbenzidine  
2,4-Dimethylphenol (m-Xylenol)  
Dimethyl phthalate  
m-Dinitrobenzene  
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)  
2,4-Dinitrophenol  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Di-n-octyl phthalate  
Diphenylamine  
Endosulfan I  
Endosulfan II  
Endosulfan sulfate  
Endrin  
Endrin aldehyde  
Ethyl methanesulfonate  
Famphur  
Fluoranthene  
Fluorene  
Heptachlor  
Heptachlor epoxide  
Hexachlorobenzene  
Hexachlorocyclopentadiene  
Hexachloropropene  
Indeno(1,2,3-c,d)pyrene  
Isodrin  
Isophorone

**TABLE VI (Continued)**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

Isosafrole  
 Kepone  
 Methapyrilene  
 Methoxychlor  
 3-Methylcholanthrene  
 Methyl methanesulfonate  
 2-Methylnaphthalene  
 1,4-Naphthoquinone  
 1-Naphthylamine  
 2-Naphthylamine  
 o-Nitroaniline (2-Nitroaniline)  
 m-Nitroaniline (3-Nitroaniline)  
 p-Nitroaniline (4-Nitroaniline)  
 Nitrobenzene  
 o-Nitrophenol (2-Nitrophenol)  
 p-Nitrophenol (4-Nitrophenol)  
 N-Nitrosodi-n-butylamine (Di-n-butylNitrosamine)  
 N-Nitrosodiethylamine (DiethylNitrosamine)  
 N-Nitrosodimethylamine (DimethylNitrosamine)  
 N-Nitrosodiphenylamine (DiphenylNitrosamine)  
 N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylNitrosamine)  
 N-Nitrosomethylethylamine (MethylethylNitrosamine)  
 N-Nitrosopiperidine  
 N-Nitrosospyrrolidine  
 5-Nitro-o-toluidine  
 Pentachlorobenzene  
 Pentachloronitrobenzene (PCNB)  
 Pentachlorophenol  
 Phenacetin  
 Phenanthrene  
 Phenol  
 p-Phenylenediamine  
 Polychlorinated biphenyls (PCBs; Aroclors)  
 Pronamide  
 Pyrene  
 Safrole  
 1,2,4,5-Tetrachlorobenzene  
 2,3,4,6-Tetrachlorophenol  
 o-Toluidine  
 Toxaphene  
 2,4,5-Trichlorophenol  
 0,0,0-Triethyl phosphorothioate  
 sym-Trinitrobenzene

**TABLE VI (Continued)**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Chlorophenoxy Herbicides:**

**USEPA Method 8151A**

2,4-D (2,4-Dichlorophenoxyacetic acid)  
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)  
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)  
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

**Organophosphorus Compounds:**

**USEPA Method 8141A**

Atrazine  
Chlorpyrifos  
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)  
Diazinon  
Dimethoate  
Disulfoton  
Ethion  
Methyl parathion (Parathion methyl)  
Parathion  
Phorate  
Simazine